REMARKS

Favorable reconsideration is respectfully requested in view of the foregoing amendments and following remarks.

Claims 9 and 18 have been amended to more particularly point out and distinctly claim the subject matter of this invention. Regarding claim 9, the support member is clarified as a support member for a high pressure filtration semipermeable membrane. Support is found in the specification, for example on page 6, line 16. Claim 9 has further been amended to specify that the mean single fiber has a fineness of 1.0-6.5 denier, and that the nonwoven fabric has an air permeability of 0.2-5.0 $cc/cm^2 \cdot s$. Support for these limitations are found in the specification at page 14, line 16 and page 10, line 14, respectively.

Claim 18 has been similarly amended.

Claims 9, 17 and 18 were rejected under 35 USC 102 as being anticipated by JP 10-174849. This ground of rejection is respectfully traversed as applied to the claims after the foregoing amendments.

Claims 9-11, 17 and 18 have also been rejected under 35 USC 103 as being unpatentable over JP 10-174849. This ground of rejection is also respectfully traversed.

JP '849 discloses with respect to nonwoven fabric, in column [0006], a fabric having a

① density of 0.4-0.95 g/cm^3,

② tensile strength (JIS-C2111) of 3-20 kg/15mm,

③ permeability of 5-20 $cc/cm^2/s$ (JIS-L1079), and

④ back pressure peel strength of a separation membrane porous member of 2 kgf/cm^2 or more.

With respect to the polyester fiber, JP '849 discloses in column [0007], a fiber having a

① fiber length of 3-15 mm and

② fineness of 1-3 denier.

On the other hand, the present invention requires with respect to the nonwoven fabric,

① a mean value of a breaking length at elongation of 5% in a lengthwise direction (MD) and a crosswise direction (CD) of 4.0 km or more, and

② air permeability of 0.2-5.0 cc/cm^2•s.

With respect to the polyester fiber, the present invention requires a fiber having a

① double refraction (Δn) of 0.170 or more,

② heat shrinkage stress at 200°C of 0.10-0.60 g/d, and

③ mean single fiber fineness of 1.0-6.5 denier.

When comparing the present invention with JP '849, only the fiber characteristic of fiber fineness overlaps each other. In addition, regarding the nonwoven fabric, only the air permeability of each is identical at just one point value of 5 cc/cm^2/s. In all other respects, the claimed support member is different from that of the '849 reference.

For example, in comparative Examples 6 and 7 on pages 46-48 of the present application, the polyester fiber produced and used has a mean single fiber fineness of 2.4 denier. The mean single fiber fineness of 2.4 denier is obtained from calculation (6.0 x 0.25 + 1.5 x 0.3 + 1.1 x 0.45) on the basis of the description of line 6 to line 14, page 46, that is, "Twenty-five parts by weight of PET fiber (fineness of single fiber: 6.0 denier; fiber length: 10 mm) having the double refraction (Δn) of 0.166 and the heat shrinkage stress (200°C) of 0.06 g/d, 30 parts by weight of PET fiber (fineness of single fiber: 1.5 denier; fiber length: 5mm) having the double refraction (Δn) of 0.162 and the heat shrinkage stress (200°C) of 0.05 g/d and 45 parts by weight of the same unstretched polyester short fiber as used in (3) of example 1 (unstretched PET short fiber [double refraction (Δn): 0.012; fineness of single fiber: 1.1 denier; fiber length: 5 mm; specific gravity: 1.340; circular section; no crimps]".

The fiber fineness of 2.4 denier is within the range of the fiber fineness disclosed in JP '849, while double refraction (Δn) and heat shrinkage stress is beyond the range of the present invention. Such a polyester fiber can also provide a support member having a permeability within the range of the claimed invention. However, a mean value of a breaking length at elongation of 5% is beyond the range of the present invention. Thus, the support member of Comparative Examples 6 and 7 has a large pore size and is poor in surface smoothness, which properties are markedly inferior to the present invention. See Table 5 in the present application.

Therefore, the support member of the present invention is neither disclosed nor suggested by JP '849, being completely different from that of JP '849.

The support member of the present invention is excellent for filtration under high pressure (line 16, page 6 of the present specification). One of the most important properties required for a support member for a high-pressure filtration is not tensile strength but dimensional stability. JP '849 discloses a tensile strength of 3-20 kg/15 mm as physical properties of nonwoven fabric. At high pressure filtration, if the support extends, abrasion of membrane occurs to cause destruction of the filter. When considering the use of tensile strength, JP '849 does not teach application its invention to high pressure filtration. This fact can be clearly understood from the description of JP '849 that "this invention relates to improvement of the rotated-type fluid separator which performs separation and concentration of a liquid using a ultrafiltration membrane or precision filtration membrane". See the column of the technical field of the invention of JP '849. Usually, ultrafiltration or precision filtration does not require a pressurized atmosphere and is carried out under ordinary pressure.

The present invention specifies physical properties of nonwoven fabric by mean value of a breaking length at elongation of 5% of 4.0 km or more. This parameter relates to the Young's modulus of a fiber, which is a parameter of dimensional stability of the support member. This parameter is not considered in JP '849 at all.

In view of the foregoing, it is respectfully submitted that the cited reference fails to disclose or suggest the support member and nonwoven fabric according to claims 9 and 18, respectively, and the claims dependent thereon. Firstly, given the markedly different applications for the fiber and nonwoven fabric of the claimed invention and JP '849, it cannot be reasonable expected that the fiber and nonwoven fabric of JP '849 would inherently possess the same properties of the claimed fiber and nonwoven fabric. Moreover, JP '849 fails to teach or suggest the criticality of controlling the dimensional stability of the support member for high pressure filtration applications.

Accordingly, favorable reconsideration and allowance is respectfully solicited.

Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attached pages are captioned "**Version with markings to show changes made**."

Respectfully submitted,

Takanori SHINOKI et al.

By: _____

Warren M. Cheek, Jr.
Registration No. 33,367
Attorney for Applicants

WMC/dlk
Washington, D.C. 20006-1021
Telephone (202) 721-8200
Facsimile (202) 721-8250
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Version with Markings to Show Changes Made

IN THE CLAIMS

Cancel without prejudice claim 1-8 and substitute therefor the following new claims:

(Amended) high pressure filtration

9. (~~New~~) A support member for a semipermeable membrane, said support member comprising a nonwoven fabric, said nonwoven fabric comprising a polyester fiber having a double refraction (Δn) of 0.170 or more, a heat shrinkage stress at 200°C of 0.10-0.60 g/d, and a mean single fiber fineness of 1.0-~~8.0~~ 6.5 denier, and said nonwoven fabric having a mean value of breaking length at an elongation of 5% in a lengthwise direction (MD) and a crosswise direction (CD) of 4.0 km or more and having an air permeability of 0.2-~~10.0~~ 5.0 cc/cm^2•s.

10. (New) The support member according to claim 9, wherein said nonwoven fabric contains said polyester fiber in an amount of 30-70% by weight.

11. (New) The support member according to claim 9, wherein said polyester fiber is poly(alkylene arylate) comprised of a diol unit selected from an ethylene glycol unit and a 1,4-butanediol unit and a dicarboxylic acid unit selected from a terephthalic acid unit and a naphthalenedicarboxylic acid unit.

12. (New) A process for preparing a support member for a semipermeable membrane, which comprises:

(i) forming a monolayered paper web comprising a polyester fiber having a double refraction (Δn) of 0.170 or more and a heat shrinkage stress at 200°C of 0.10-0.60 g/d, and a heat weldable binder fiber, in a weight ratio of 70:30-30:70, and

(ii) subjecting the monolayered paper web to a heat treatment under pressure to bind the fibers to each other.

13. (New) The process according to claim 12, which further comprises

(iii) laminating a second monolayered paper web or other fibrous web on the heat-treated monolayered paper web, and then

(iv) subjecting the laminated webs to a heat treatment under pressure to bind the webs together.

14. (New) The process according to claim 12, wherein the heat weldable binder fiber is a polyester fiber.

15. (New) A process for preparing a support member for a semipermeable membrane, which comprises:

(i) forming a monolayered paper web comprising a polyester fiber having a double refraction (Δn) of 0.170 or more and a heat shrinkage stress at 200°C of 0.10-0.60 g/d, and a heat weldable binder fiber, in a weight ratio of 70:30-30:70,

(ii) laminating a second monolayered paper web or other fibrous web on the monolayered paper web, and then

(iii) subjecting the laminated webs to a heat treatment under pressure to bind the webs together.

16. (New) The process according to claim 15, wherein the heat weldable binder fiber is a polyester fiber.

17. (New) A semipermeable membrane comprising a semipermeable film formed on a side of the support member according to claim 9.

Amended — high pressure filtration

18. (~~New~~) A nonwoven fabric comprising a polyester fiber having a double refraction (Δn) of 0.170 or more, a heat shrinkage stress at 200°C of 0.10-0.60 g/d, and a mean single fiber fineness of 1.0-~~8.0~~ 6.5 denier, and said nonwoven fabric having a mean value of breaking length at an

elongation of 5% in a lengthwise direction (MD) and a crosswise direction (CD) of 4.0 km or more and having an air permeability of 0.2-~~10.0~~ 5.0 $cc/cm^2 \cdot s$.